

27.11

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 21 January 2000 (21.01.00)	
International application No. PCT/US99/09761	Applicant's or agent's file reference 44921-5004WO
International filing date (day/month/year) 05 May 1999 (05.05.99)	Priority date (day/month/year) 05 May 1998 (05.05.98)
Applicant PRASHAR, Yatindra et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
03 December 1999 (03.12.99)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Olivia RANAIVOJAONA
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

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INTERNATIONAL COOPERATION TREATY

NOV 22 1999

MORGAN, LEWIS & BOCKIUS LLP PCT

From the INTERNATIONAL BUREAU

To:
ADLER, Reid, G.
Morgan, Lewis & Bockius LLP
1800 M Street, N.W.
Washington, DC 20036
ÉTATS-UNIS D'AMÉRIQUE

**NOTICE INFORMING THE APPLICANT OF THE
COMMUNICATION OF THE INTERNATIONAL
APPLICATION TO THE DESIGNATED OFFICES**

(PCT Rule 47.1(c), first sentence)

Date of mailing (day month year) 11 November 1999 (11.11.99)		
Applicant's or agent's file reference 44921-5004WO		IMPORTANT NOTICE
International application No. PCT US99 09761	International filing date (day month year) 05 May 1999 (05.05.99)	
Priority date (day month year) 05 May 1998 (05.05.98)		
Applicant GENE LOGIC, INC. et al		

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:

AU,EP,JP,US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:

CA

The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on 11 November 1999 (11.11.99) under No. WO 99 57130

REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB 30¹ (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

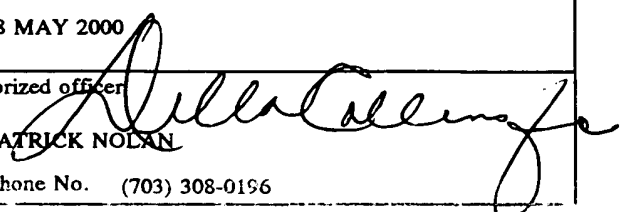
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 44921-5004WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US99/09761	International filing date (day/month/year) 05 MAY 1999	Priority date (day/month/year) 05 MAY 1998
International Patent Classification (IPC) or national classification and IPC Please See Supplemental Sheet.		
Applicant GENE LOGIC, INC.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of 0 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 03 DECEMBER 1999	Date of completion of this report 18 MAY 2000
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer  PATRICK NOLAN
Facsimile No. (703) 305-3230	Telephone No. (703) 308-0196

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International Application No. **470**

PCT/US99/09761

REC'D 20 JUN 2000

PCT

I. Basis of the report

1. With regard to the elements of the international application:*

☒ the international application as originally filed

☒ the description:

pages 1-48, as originally filed
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____

☒ the claims:

pages 49-57, as originally filed
 pages NONE, as amended (together with any statement) under Article 19
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____

☒ the drawings:

pages 1-8, as originally filed
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____

☒ the sequence listing part of the description:

pages 1-10, as originally filed
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages N/A
☒ the claims, Nos. N/A
☒ the drawings, sheets/fig N/A

5. ☒ This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

**Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US99/09761

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. statement

Novelty (N)	Claims <u>1-33</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>3, 8-11, 14-15, 24-25, 28-33</u>	YES
	Claims <u>1-2, 4-7, 12-13, 16-23, 26-27</u>	NO
Industrial Applicability (IA)	Claims <u>1-33</u>	YES
	Claims <u>NONE</u>	NO

2. citations and explanations (Rule 70.7)

Claims 1, 2, 4-7, 12-13, 16-23 and 26-27 lack an inventive step under PCT Article 33(3) as being obvious over WO 97/05286 in view of Grossman et al.

The '286 patent teaches using gene expression from activated and non-activated T cells and comparing the effects of drugs on said activation levels for use in treating diseases or comparing drug use in treatment outcomes.

The claimed invention differs from the prior art teachings by the recitation of using said gene expression method of T cells in the diagnosis or treatment protocols of HIV. However, Grossman et al., teaches using gene expression in T cells during HIV as a tool to determine disease progression and therapy.

Therefore it would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use the assay taught by the '286 patent to determine T cell activation in HIVs taught by Grossman et al.

Claims 3, 8-11, 24-25 and 28-33 meet the criteria set out in PCT Article 33(3), because the prior art does not teach or fairly suggest using B cells in the assay or assaying for genetic diseases or the specific primers.

Claims 1-33 meet the criteria set out under PCT Articles 33(2) and 33(4).

----- NEW CITATIONS -----

NONE

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US99/09761

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

CLASSIFICATION:

The International Patent Classification (IPC) and/or the National classification are as listed below:

IPC(7): C07H 21/04; C12N 15/00; C12Q 1/02, 1/68 and US Cl.: 435/6, 29, 320.1, 325; 536/24.3, 23.5

1. BASIS OF REPORT:

5. (Some) amendments are considered to go beyond the disclosure as filed:

NONE



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : C07H 21/04, C12N 15/00, C12Q 1/02, 1/68	A1	(11) International Publication Number: WO 99/57130 (43) International Publication Date: 11 November 1999 (11.11.99)
(21) International Application Number: PCT/US99/09761 (22) International Filing Date: 5 May 1999 (05.05.99) (30) Priority Data: 60/084,329 5 May 1998 (05.05.98) US (71) Applicant (for all designated States except US): GENE LOGIC, INC. [US/US]; 708 Quince Orchard Road, Gaithersburg, MD 21046 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): PRASHAR, Yatindra [IN/US]; 9749 Clocktower Lane #304, Columbia, MD 21046 (US). WEISSMAN, Sherman [US/US]; 459 St. Ronan Street, New Haven, CT 06511 (US). (74) Agent: ADLER, Reid, G.; Morgan, Lewis & Bockius LLP, 1800 M Street, N.W., Washington, DC 20036 (US).		(81) Designated States: AU, CA, JP, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
(54) Title: A PROCESS TO STUDY CHANGES IN GENE EXPRESSION IN T LYMPHOCYTES (57) Abstract Methods are disclosed to identify T lymphocyte genes that are differentially expressed upon exposure to a pathogen (viral or bacterial), immunogen, antigen, or in a sterile inflammatory disease, autoimmune disease, immunodeficiency disease, lymphocytic cancers, or graft versus host rejection. The method involves the preparation of a gene expression profile of a T lymphocyte population exposed to a pathogen or isolated from a subject having one of the aforementioned pathologies and comparing that profile to a profile prepared from quiescent T lymphocytes. The present invention is particularly useful for identifying cytokine genes, genes encoding cell surface receptors and genes encoding intermediary signalling molecules. Related methods for identifying therapeutic or prophylactic immunomodulatory agents are presented. Articles of manufacture are disclosed that comprise selected grouping of nucleic acids, affixed to a solid support, that correspond to genes that are differentially expressed in various populations or subpopulations of T lymphocytes at variations stages of T cell differentiation, in quiescent versus activated T lymphocytes or normal versus diseased T lymphocytes.		

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

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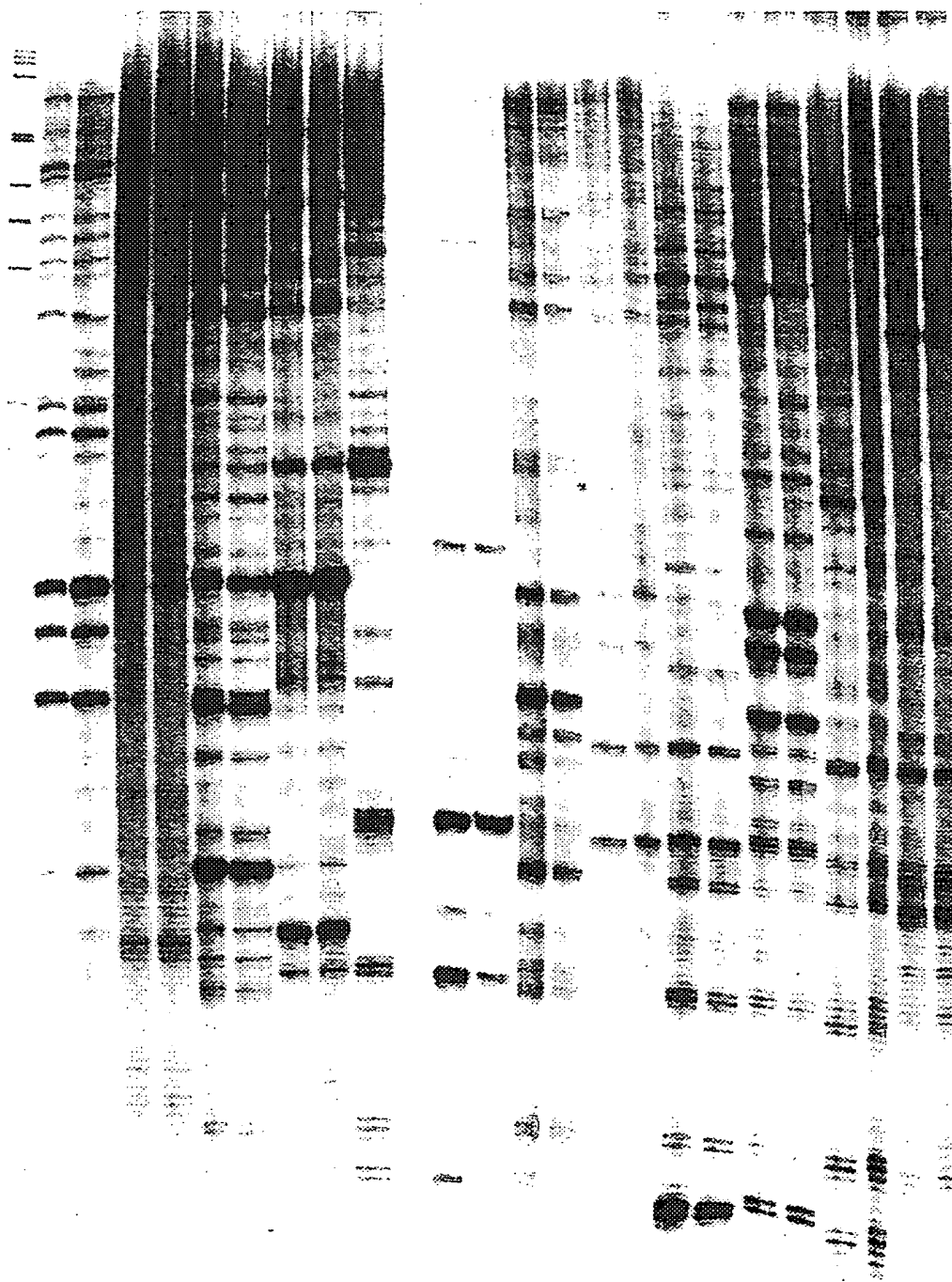
FIG. 1A

FIG. 1B

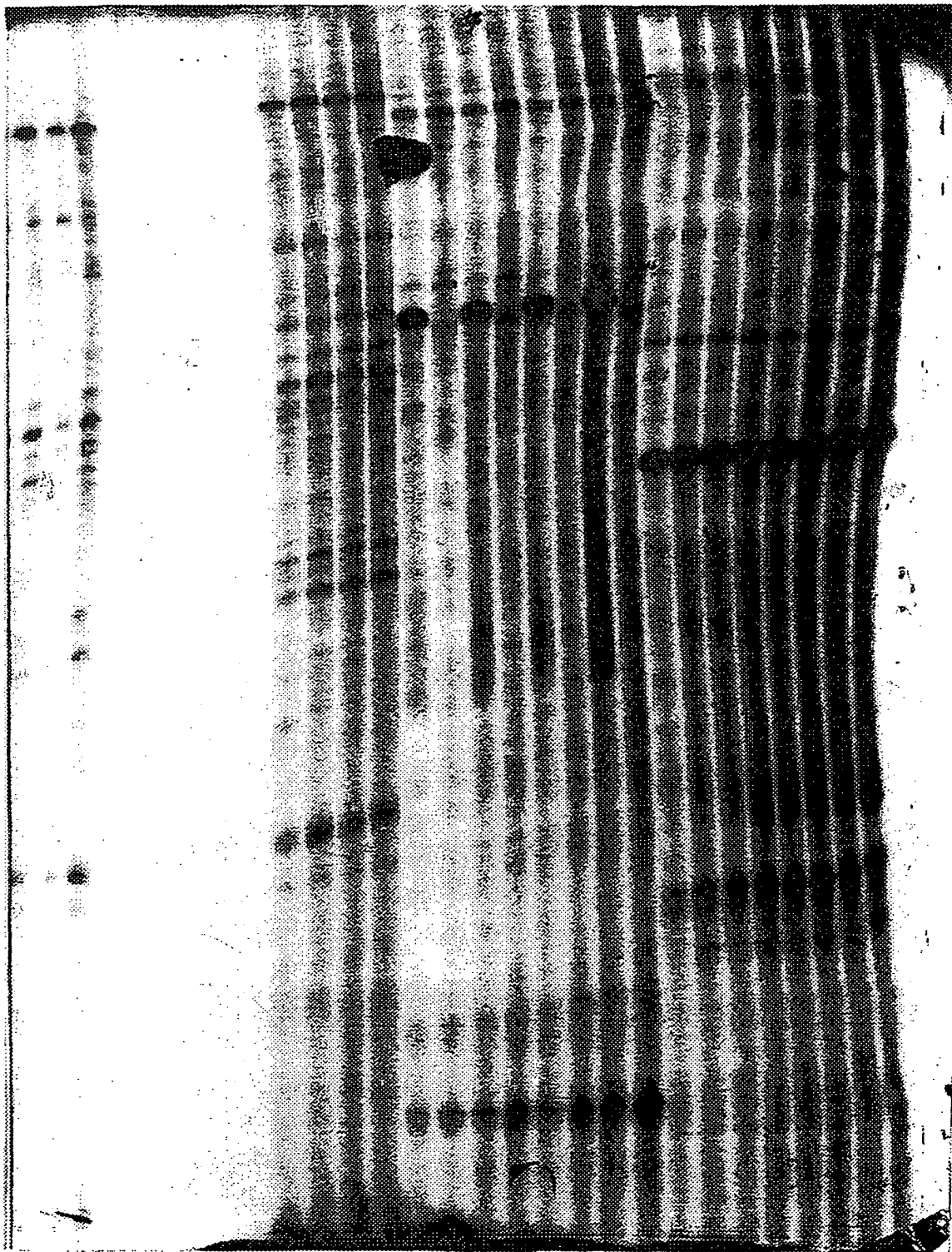
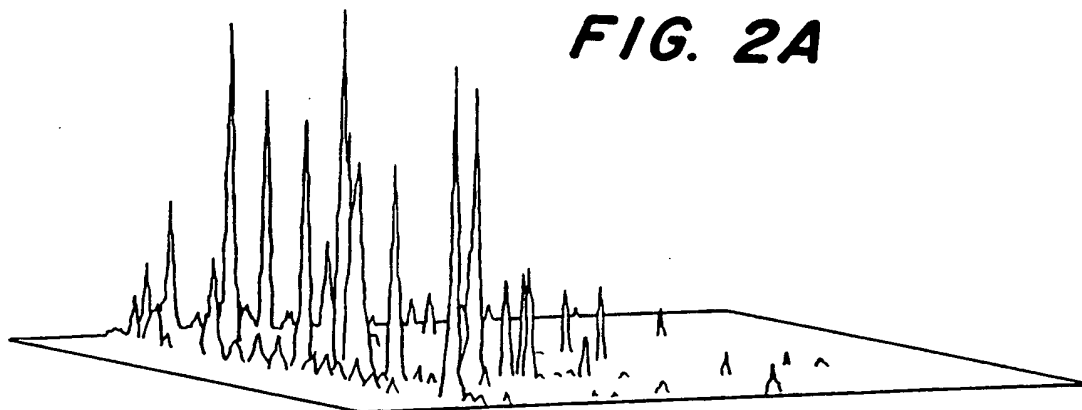
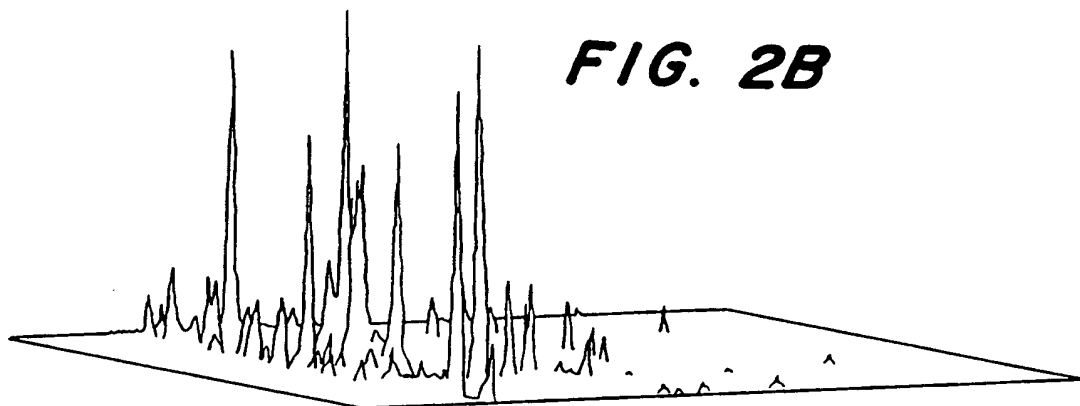
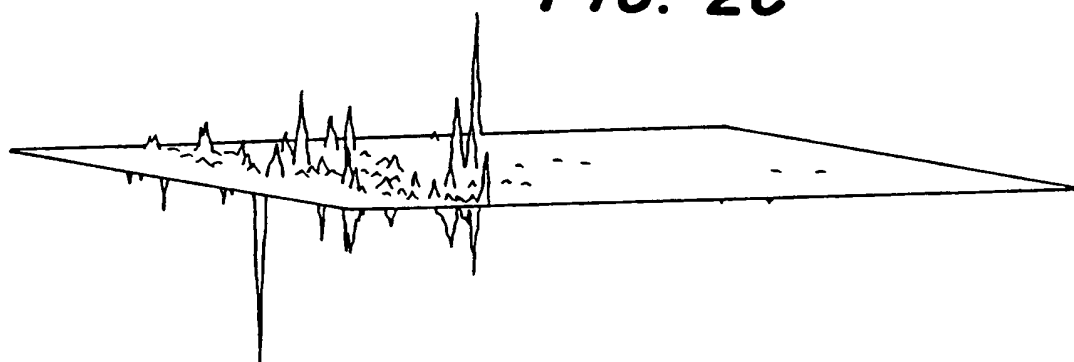


FIG. 2A**FIG. 2B****FIG. 2C**

* PARTIAL PATTERNS SHOWN REPRESENT APPROXIMATELY
5% OF COMPLETE PATTERN (ALL GENES EXPRESSED).

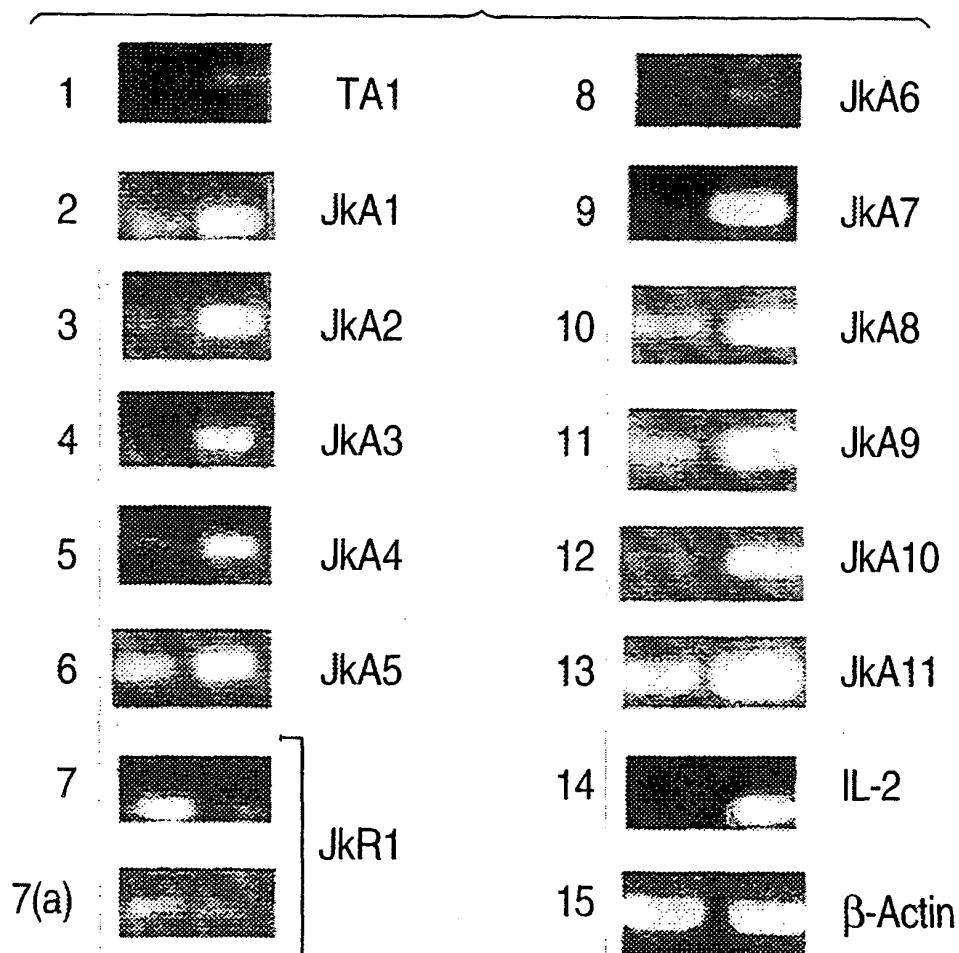
FIG. 3

FIG. 4

Differential Display Summary of Results						Gene Bank Search and Analysis
No.	Clones	N1N2	Expression Patterns			
			Control T cells	Activated T cells		
1	TA1		0	+	Unknown	
2	JkA1		+	+++	Unknown	
3	JkA2		+	+++	Unknown	
4	JkA3		+/-	++	Unknown	
5	JkA4		+/-	++	Unknown	
6	JkA5		+	+++	Unknown	
7	JkA6		0	+	Unknown	
8	JkA7		0	+++	Unknown	
9	JkA8		++	+++	Unknown	
10	JkA9		++	+++	Unknown	
11	JkA10		+1-	+++	Unknown	
12	JkA11		++	+++	Human Serine Esterase	
13			0	++		
14			0	++	Human Ribosomal Protein 58	

FIG. 4 cont.

Differential Display Summary of Results					
No.	Clones	NIN2	Expression Patterns		Gene Bank Search and Analysis
			Control T cells	Activated Tcells	
15			0	++	Unknown
16			0	++	Protein Translation Factor SVJ1

FIG. 5

Clone v. Name	Enzyme	Band No.	R.P.	Level of Regulation*	Match (if any)	Percent ID	GenBank Accession	SEQ ID NO.
02_SV_011398_S AC7E_02	Bln I	11	10.2	4X I	Human mRNA for actin binding protein p57	98.182	HUMP57B	14
02_SV_011698_B SSIBAND26_02	Bln I	4	8.5	Absent	Human mRNA for KIAA0120 gene	99.194	HUMORFFA	15
04_SV102897_2A	Bln I	12	10.2	2X I	No human match			16
06_SV102897_1B	Bln I	5	8.5	1.5X I	Human ferritin light subunit mRNA	95.918	HUMFERLA	17
06_SV_011398_S AC14A_06	Bln I	13	10.2	2X I	Human STS WT-30177	98.611	G23064	18
08_SV102897_2B	Bln I	6	9.4	2X I				
10_NSI08E_10	Bln I	14	10.2	1.5X I	Human DNA sequence from BAC 397C4	94.554	HS397C4	19
10_SV102897_1C	Bln I	7	9.4	Absent	Human clone 23732 mRNA	99.559	HSU79238	20
10_SV_011398_S AC15D_10	Bln I	15	10.2	3X I	Human hsc70 gene for 71 kd heat shock	98.785	HSHSC70	21
12_SV102897_2C	Bln I	18	10.3	2X I	Human colon carcinoma laminin-binding pr	99.602	HUMLAMB	
14_SV102897_1D	Bln I	9	9.4	2X I	No human match			22
16_SV102897_2D	Bln I	10	9.4	(Absent in R	Human mRNA export protein Rael	98.788	HSU84720	23
18_SV102897_1E	Nsi I	8	8.4	2X I	No human match			24
19_SV011698_BS SIBAND15_19	Sac I	1	8.3	2X I	No human match			25

8/8

FIG. 5 cont.

Clone v. Name	Enzyme	Band No.	R.P.	Level of Regulation*	Match (if any)	Percent ID	GenBank Accession	SEQ ID NO.
20_SV102897_2E	Sac I	14	8.6	---	Human ferritin L chain mRNA	100	HUMFERL	26
23_SV011698_BS SIBAND17_23	Sac I	15	8.6	1.5X ¹	Human mRNA for Plcdc47	100	HUMP1CDC47	27
24_SV102897_2F	Sac I	7	8.4	Absent	Human pancreatic tumor-related protein	99.512	HUMPANCAN	28
26_SV102897_1G	BssSI	15	8.6	2X ¹	Homo sapiens HLA-B gene	100	D83956	29
27_SV_011698_B SSIBAND19_27	BssSI	17	9.2	2X ¹	Homo sapiens MLN50 mRNA	97.5	HSMLN50	30
30_SV102897_1H	BssSI	19	9.4	2X ¹	No human match			31
31_SV_011698_B SSIBAND22_31	BssSI	22	10.2	4X ¹	Human platelet activating factor acetyl/h	97.826	HSLIS10	32
37_SV_010898_S AC_BAND1_37	BssSI	26	10.3	2.5X ¹	No human match			33

* Gene expression in Activated tissue is represented as (1) or down (1) regulated with respect to Resting Jurkat tissue. X represents fold increase or decrease in expression levels.

SEQUENCE LISTING

<110> Gene Logic, Inc., c/o Dr. Larry Tiffany

<120> Process to Study Changes in Gene Expression in T
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<130> gene logic 5004pr expression T lymphs

<140> 60/084,329

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tttcatgaga cagtcatttt taactaatga agtgattctt tctcactact atctgtattg 180
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<210> 12

<211> 186

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<213> Jurkat cell cDNA

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<210> 14

<211> 151

<212> DNA

<213> T lymphocyte cDNA

<400> 14

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gcagagaaaa aaatcataat aaaatggctt t 151

<210> 15

<211> 148

<212> DNA

<213> T lymphocyte cDNA

<400> 15

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<211> 194

<212> DNA

<213> T lymphocyte cDNA

<400> 16

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cttcaaggcg gcctctacct tttctcagaa tggtttctctg attgtgtcaa tgtgaaagtt 180
aaataaaatt tatg 194

<210> 17

<211> 116

<212> DNA

<213> T lymphocyte cDNA

<400> 17

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 aanaggcanc tttcntannt atcctaacia gccttggacc aaatggaaat aacagc 116

<210> 18

<211> 212

<212> DNA

<213> T lymphocyte cDNA

<400> 18

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<210> 19

<211> 189

<212> DNA

<213> T lymphocyte cDNA

<400> 19

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<210> 20

<211> 219

<212> DNA

<213> T lymphocyte cDNA

<400> 20

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<210> 21

<211> 285

<212> DNA

<213> T lymphocyte cDNA

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 gcaaattctg tggcagtttt aaaaagttaa gctgctatag taagttactg ggcattctca 180
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285

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<211> 195

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<213> T lymphocyte cDNA

<400> 22

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aaataaaatt tatgt 195

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<211> 180

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<211> 138

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<213> T lymphocyte cDNA

<400> 24

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<211> 74

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<210> 26

<211> 119

<212> DNA

<213> T lymphocyte cDNA

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<211> 253

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<213> T lymphocyte cDNA

<400> 27

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tgcttgcaac cctgggggtcc tcttggtccc tgctggcctg ccccttgga aggggcagtg 180
atgcctttga ggggaaggag gagcccctct ttctcccatg ctgcacttac tccttttgtct 240
aataaaagtg ttt 253

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<211> 344

<212> DNA

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tgagtccana ttggcaggtg gactacgagt catacacatg gcggaaactg gatcctggca 180
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<211> 456

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 ctctgggact tgtgggcctc agggcttggg gcaggcatgg gactggccca ggacacacagg 240
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 gttacacatt aaaacgattt 320

<210> 32

<211> 116

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<210> 34

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<213> T lymphocyte cDNA

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<213> 1-base anchored oligo(dT) primer

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<210> 39
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<400> 43
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<210> 44
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PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION

(PCT Rule 44.1)

To: REID G. ADLER MORGAN, LEWIS & BOCKIUS LLP 1800 M STREET, N.W. WASHINGTON, D.C. 20036

Date of Mailing <i>(day/month/year)</i>	13 SEP 1999
--	--------------------

Applicant's or agent's file reference 44921-5004WO	FOR FURTHER ACTION See paragraphs 1 and 4 below
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International application No. PCT/US99/09761	International filing date <i>(day/month/year)</i> 05 MAY 1999
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Applicant GENE LOGIC, INC.

1. ☒ The applicant is hereby notified that the international search report has been established and is transmitted herewith.
Filing of amendments and statement under Article 19:
 The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):
When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the international search report; however, for more details, see the notes on the accompanying sheet.
Where? Directly to the International Bureau of WIPO
 34, chemin des Colombettes
 1211 Geneva 20, Switzerland
 Facsimile No.: (41-22) 740.14.35
For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. ☐ **With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:**

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Further action(s):** The applicant is reminded of the following:
 Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in rules 90 bis 1 and 90 bis 3, respectively, before the completion of the technical preparations for international publication.
 Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).
 Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer PATRICK J. NOLAN
Facsimile No. (703) 305-3230	Telephone No. (703) 308-0196

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 44921-5004WO	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US99/09761	International filing date (<i>day/month/year</i>) 05 MAY 1999	(Earliest) Priority Date (<i>day/month/year</i>) 05 MAY 1998
Applicant GENE LOGIC, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (See Box I).
2. ☐ Unity of invention is lacking (See Box II).
3. ☒ The international application contains disclosure of a nucleotide and/or amino acid sequence listing and the international search was carried out on the basis of the sequence listing

☒ filed with the international application.
☐ furnished by the applicant separately from the international application.

☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.

☐ transcribed by this Authority.
4. With regard to the title, ☒ the text is approved as submitted by the applicant.
☐ the text has been established by this Authority to read as follows:
5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.
☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.
6. The figure of the drawings to be published with the abstract is:
 Figure No. _____

☐ as suggested by the applicant.
☐ because the applicant failed to suggest a figure.
☐ because this figure better characterizes the invention.

☒ None of the figures.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US99/09761

A. CLASSIFICATION OF SUBJECT MATTER

IPC(G) : C07H 21/04; C12N 15/00; C12Q 1/02, 1/68

US CL : 435/6, 29, 320.1, 325; 536/24.3, 23.5

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/6, 29, 320.1, 325; 536/24.3, 23.5

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 97/05286 A1 (YALE UNIVERSITY) 13 February 1997, see entire document.	1-32
Y	GROSSMAN et al. SHORT ANALYTICAL REVIEW. From HIV Infection to AIDS: Are the Manifestations of Effective Immune Resistance Misinterpreted? Clinical Immunology And Immunopathology. 01 November 1993, Vol. 69, No. 2, pages 123-135, see entire document.	1-32

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
E earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*Z* document member of the same patent family
O document referring to an oral disclosure, use, exhibition or other means	
P document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

13 AUGUST 1999

Date of mailing of the international search report

13 SEP 1999

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

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